NON-CIVILIAN DUTY VEHICLES

By Larry Moore

Vehicles found in the Alpha Dawn rules are designed for use by private citizens travelling from place to place throughout the frontier. When hostilities occur characters might shoot out the tires, engines or parabattery compartments to disable a vehicle or heroically leap from one vehicle to another.

This system proposes a way to take ordinary everyday vehicles and apply a non-civilian duty package allowing them to be used for more interesting purposes!

VEHICLE DUTY

In order to build a non-civilian vehicle, use one of the vehicles from Vehicle List as a foundation. Then apply a non-civilian "duty" modification. Alternatively, if the vehicle list provided in Alpha Dawn (or any of its supplements or adventure modules) is inadequate, Referees might wish to create new custom vehicles. For those who don't mind doing some conversions, the Referee's handbook for FrontierSpace will provide a handy set of tools for creating new vehicles. Test it out (work in progress) at http://dwdstudios.com/vehicle

Corporate-Duty – The large megacorporations in the frontier sometimes bend the rules. They have strong lobby groups that have somehow managed to allow their higher-ups and important visitors to have protection in their vehicles, despite the fact that civilian vehicles may not. A corporate-duty vehicle doesn't have too many hardpoints, but it's the only non-civilian vehicle you're likely to find in the frontier which is legal to own in most places without any special permit. The performance of a corporate-duty vehicle is identical to that of its civilian counterpart.

Security-Duty – A security-duty vehicle is often used by law enforcement or for light security detail. They escort civilian and corporate vehicles around the frontier and provide the highest firepower not designed for a battlefield. Owning and operating a security-duty vehicle will require some sort of permit or license, or will require membership to certain organizations. Certain militias and light military groups might have security-duty vehicles in their main fleet. Security-duty vehicles are heavier than corporate models and maneuver a bit more sluggishly. Despite this, their superstructure provides them a decent quantity of hardpoints and damage reduction.

Paramilitary-Duty – A paramilitary-duty vehicle is used by recon or scout groups, by explorers and by urban mercenaries. It requires a special license or membership with an organized military to own and operate a paramilitary-duty vehicle. These types of vehicles have impressive firepower (larger number of hardpoints) than security-duty vehicle. They are less expensive than their more militant cousins. The added mass of superstructure to allow hardpoints causes the handling rating of the vehicle to be reduced as well as the vehicle's normal acceleration rating. Paramilitary vehicles are extremely powerful and tend to be the most dangerous vehicles in use by a megacorporation or government.

Military-Duty – These vehicles are designed for a battlefield. They normally don't make an appearance in a civilian area except to pass through (and normally must disarm their offenses during this time) or to root out aggressors. Player characters won't often find themselves in possession or ownership of a military-duty vehicle, but might end up being chased by one! Ownership of such vehicles (due to the potential of massive amounts of firepower) is restricted to governments and some mercenary groups given permit income regions of the frontier. The added mass necessary to provide so many hardpoints results in some performance hits: a military-duty vehicle has reductions to handling, acceleration, and top speed. Most owners of military vehicles agree that the added damage resistance and large number of hardpoints results in a powerful vehicle despite these penalties.

HARDPOINT

A non-civilian vehicle has hardpoints (sometimes abbreviated "hp"). A hardpoint is a reinforced area on a vehicle hull that allows a weapon mount (see below) to be attached and connected to the vehicles electronic systems. The larger the vehicle, the more hardpoints can be made available. Of course, vehicles designed for light security detail aren't going to have as many hardpoints as those designed for more rugged military campaigns.

WEAPON MOUNT

A hardpoint isn't enough for you to install a weapon. You need a mount to house it. Mounts come in different sizes and shapes, some of which are purely external to the vehicle while others take up some internal space as well. Some of them are directional turrets, while others are line-of-sight mounts which require the vehicle's pilot to line up his shot. Mounts themselves are containers into which modular weapons can be placed.

The size of the mount (small, medium, and large) affects what size of modular vehicle weapon that can be installed into it.

If a weapon is removed from a mount, a like or smaller weapon can be mounted in its place. In order to install a larger weapon than the mount will allow, the mount must first be removed a replaced with a larger mount. Note that some mounts require cargo units in addition to hardpoints. Make sure you leave enough room for the ammo payloads.

Note: Some laws govern whether a vehicle can have externally mounted weapons and may require a permit. Otherwise you may have to pay the extra cost to conceal them internally.

Surface Mount – these mounts are the simplest type and the least invasive into the body structure of the vehicle. A simple mount or standoff is fixed in place on the vehicle. It has a simple 90 degree firing arc and is very noticeable to passersby. Usually (though not always) fired by the pilot or copilot of the vehicle because vehicle facing is crucial to lining up a shot. Surface mounts are popular because they take up hardpoints and nothing else, and are the easiest on the pocketbook. However, they are able to be targeted by a gunner with good aim.

Turret Mount – This is a semi-circular mounted turret fixed to the vehicle's surface. It can rotate 360 degrees horizontally or vertically (depending on whether it is mounted to the top or side of a vehicle) but only 90 degrees in the other direction. Because of this it is often operated by a gunner other than the pilot since the facing of the vehicle is far less crucial to the targeting of the shot. Turrets have internal components that allow them to rotate and move, which consumes some of a vehicle's internal cargo area as shown on the table. Although more expensive than the surface mount, turret mounts are popular on vehicles with more than a few weapon types, especially those destined for the battlefield.

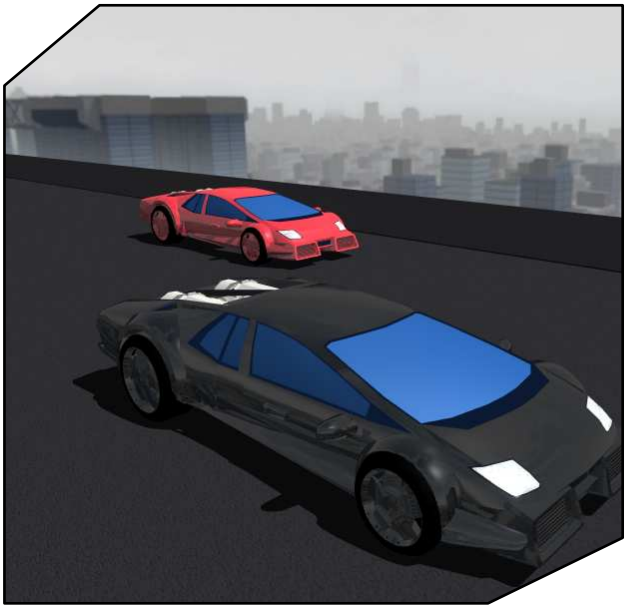
Internal Mount – This type of mount is hidden, concealed within the body of the vehicle itself. When activated, just enough of the mount extends from the vehicle to allow the weapon to fire. This type of mount, despite the fact that it consumes a fair amount of cargo units of the vehicle, is popular among corporate and security duty vehicles because it allows it to pass as a civilian vehicle until the time is right. Just as a surface mount, the internal mount has only a 90 degree firing arc. Activating or deactivating the mount takes an action in a combat turn.

Internal Turret – This is the best of both worlds: invisible until it is needed, and once activated is able to fire in a full 360 degree arc. This mount resides within the vehicle's body and pops out to reveal a fully-functional turret. Similar to the turret mount, above.

TARGETING

There are numerous targeting systems used by private, corporate and military sectors. The most common are EWC's (eye-weapon coordination), CLS's (computer linked systems) and manual operation.

EWC – This system coordinates the gunner's eyes and weapon systems in such a way that they move in tandem increasing the chance to hit by 30%. As the system follows the gunner's eye movement, the weapon is brought to bear along the wearer's line of sight. When the weapons are aimed at the target, the gunner has only to push a button, flip a switch, or pull a trigger to fire any combination of weapons. The required helmet can be switched from infrared to normal vision. In addition the helmet is linked to a set of infrared and video cameras on the outside of the vehicle that project images onto the inside of the helmet visor or on a display screen. Each weapon must have a EWC link even if their in the same turret.



(GJD made this for my son and me. Although they are identical vehicles I'm pretty sure mine is faster. Heh)

CLS – A computer linked system connects to the vehicles computer system (or may be stand-alone) and allows the pilot to issue voice commands while keeping his hands free for maneuvering. After a target and weapon is designated the computer handles targeting and firing. The computer can fire-link any number of weapons as long as the weapons are able to fire in the same direction. A CLS system is equipped with infrared targeting sensors and includes the CLS computer, software and weapon link, each is sold separately. Each weapon must have a CLS link even if their in the same turret. The base change to hit is 30% + 10% per software level. Refer to the following table;

Software Level	1*	2	3	4	5	6
Function Points	1	2	4	8	16	32

* Level 1 software included with CLS computer
** Cost is 1,000 * function points

Manual – A gunner operates the weapon by hand and is by far the most common targeting system in civilian use today. The pilot simply lines up a shot and fires the weapon. Other methods of manually operation include exposing a gunner to enemy fire while operating a weapon outside the vehicle such as a top hatch or side door. Anyone firing from a hatch or door is considered to have hard cover. Some mounts can be controlled via a video or infrared feed and joystick. This method is obviously safer for the gunner.

VEHICLE DEFENSES

There are basically two types of vehicle defenses; screens and armor. One other defense mechanism is called the vehicle holo-screen which relies on obscuring the vehicle from detection or hiding its true identity.

SCREENS

Screen defenses use specialized emitters mounted on the sides and top of a vehicle. Corporate and security

duty vehicle emitters tend to be located near inconspicuous areas of the vehicle while military vehicles do not worry about unsightly gadgets. Emitters must be installed on the vehicles outer hull and do not require space or cargo.

Vehicle screens work the same as character based screens with one caveat; inertia screens halve damage from flamethrowers. If a screens power is depleted before soaking up all the damage, for each 10 points of damage, rounded up, add 1 to the roll on the vehicle damage table.

All defensive and holo screens require emitters. The number of emitters required for each type of defense is equal 2x the vehicles size (discussed below). A vehicle can have any number of emitters' installed but only one screen may be active at one time.

NEW EQUIPMENT

Shimmer – This specialized power hungry screen is designed to protect a vehicle form all damage types for short periods of time. The screen shifts between albedo, gauss, inertia and sonic defenses. There is a small chance a hit penetrates the screen during the instant it shifts from one defensive type to the next; any hit roll of 01-05 ignores this shield's protective effect. Although the screen offers the very best protection in the frontier, while it is activated no weapons can be fired out of the shield.

Holo-Screen – This vehicle version of the character based holo-screen projects a 3-dimensinal image around the vehicle. The imager can hold up to 3 images of a like-size vehicle. The imager holo-disk costs 500 credits and the images must be specified at the time of purchase. The holo image is limited to roughly the same size and shape as the vehicle. A holo-screen is only 80% effective; on a roll of 81-00 an onlooker will notice something is wrong. A camouflage feedback loop can be added to the holo-screen for an additional 1,000 Cr. The camouflage loop adjusts the holo image to match nearby surroundings, giving the wearer an 80% chance to be "invisible" to onlookers.

For an additional 2,000 credits a projection system can be installed that projects an image up to 20 meters. The image can be any size from a human to a very large tanker truck (size 6 vehicle).

PROTECTION & ARMOR

Non-civilian duty modifications come with reinforcements and structure changes that offer a certain level of protection. The protection number, located in the non-civilian duty table, is subtracted from the result when rolling on the vehicle damage table. Armor is additive to the protection number and in addition increases the number of structural points (SP) a vehicle has. For normal armor multiply the SP x 1.25, for heavy armor multiply the SP by 1.5.

Referee Note: If you do not use the optional vehicle damage table provided in this article you may want to adjust the protection and armor numbers for use with the Alpha Dawn vehicle damage table.

Example Damage and Protection

Medium laser cannon damage is 2d10x10 or +20 on the vehicle damage table. In this example a size 5 vehicle with a security duty modification would reduce the number by 5. If the same vehicle is armored you would reduce the number by an additional 5. The final result is +10 on the vehicle damage table. Feel free to adjust protection numbers to fit your setting accordingly.

VEHICLE DESTRUCTION

How do you know when a vehicle is totally destroyed? This optional rule changes the "No Effect" result in the Alpha Dawn vehicle damage table to direct damage to the structure of a vehicle. The number of structural points (SP) for each vehicle is listed in the Vehicle Table. When the vehicle is reduced to zero structural points it is rendered useless. This is not to say the vehicle is a heaping pile of metal and plastic, it merely suggests the vehicle is so badly damage it is no longer fit for service. For example, if a laser pistol penetrated the hull of a cars engine compartment it may hit a sensitive area causing the vehicle to stop. Non-civilian duty packages do not add to the structural points.

Vehicle Structural Point Baseline

As a baseline a vehicle has a number of SP equal to its size x 200. From there you can adjust up or down. I have already adjusted the SP values in the Vehicle Table.

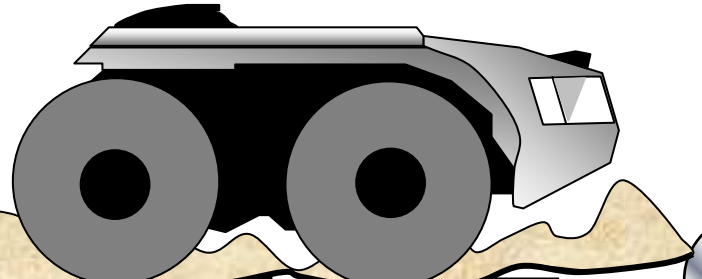
Damage + Vehicle Damage Table

This option rule involves rolling normal damage against the vehicles SP and rolling on the vehicle damage table. Possibly a little more realistic as hits tend to rip apart a vehicle and cause malfunctions.

VEHICLE SIZE

This is the relative size of the vehicle. Small 2-person vehicles such as road bikes and ski jets are size 1 while a larger version of a road bike may reach size 2. Use this table as a general guideline when determining vehicle size. (You may notice a large jump between size 4 and 5).

Size	Description
1	2 person cycles
2	2-4 person small car
3	Mid-size car
4	Small cargo trucks or vans
5	Large cargo haulers, tractor-trailers
6	Reserved for the truly large vehicles but excluding mass transports such as monorails or trains.



FINAL THOUGHTS

Trading Passengers for Space
Bill Logan and I, with the help of some members of the community, built several vehicle systems, one of which allowed a player to swap out crew/cargo for raw space that could be used to install additional weapons, defenses and ammo. After considering the formulas we decided the easiest way is to allow 2 passengers to be swapped out for 1 hardpoint or 2 cubic meter of cargo for 1 hardpoint.

Upgrades using the Technician Skill
A technician, without a lab, can upgrade the duty of a vehicle by one step. For instance, upgrading from civilian-duty to corporate-duty is one step. More then one step requires a fully equipped technician lab.

The time it takes to scavenge parts depends on the location and material available. A small settlement or outpost takes 1d10 days to get enough parts for a field conversion. But in a well-settled town or city, only takes 1d10 hours.

The cost of the upgrade is approximately 50 credits worth of consumable tools per vehicle size. For instance a vehicle size 3 would need 150 credits worth. Scavenged parts from a dealer might have a cost associated with them as well. Material cost is 20% less than the cost shows in the Non-Civilian Duty Table.

Altitude Conventions Table
This table is used to give a general guideline for different ceiling heights. I plan on using it as a reference in future articles.

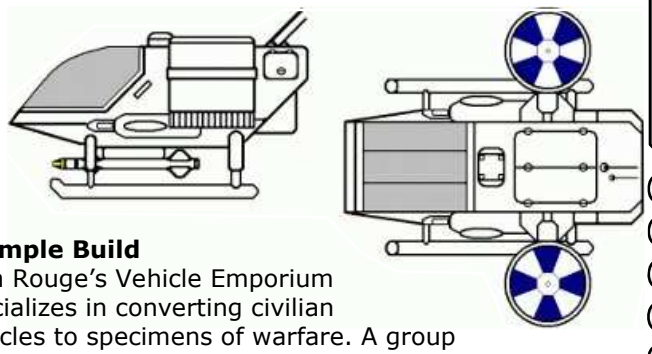
	Altitude	Description
Orbit	160+ km	Stations, spaceships, shuttles
Suborbital	160km	Landers
High	100km	Fast transports, intercontinental liners
Medium	30km	Aircars, jetcopters, cargojets, glijets
Low	5km	Variable hover vehicles
Land	1m	Ground vehicles, hover vehicles (fixed height)

* Shuttles are space vehicles that ferry personal and cargo between a space station and ships or between ships. A lander is specifically designed to withstand constant re-entry into the atmosphere and ferries personal and cargo between a planet and orbit.

Watercraft Damage Table
I have included a few water vehicles in the vehicle table below. In a future issue I would like to write another article covering these types of vehicles. Matthew M. Seabaugh wrote an article entitled, "From Freighters to Flying Boats" that appeared in DRAGON® 149. I have remastered the article which can be found on the StarFrontiersman or DwD Studios websites.

STEP BY STEP

1. Choose a vehicle from the Vehicle List.
2. Apply a non-civilian duty package and adjust apply vehicle modifiers.
3. Install mount system.
4. Install weapons in mounts.
5. Choose targeting system(s).
6. Choose defenses.
7. Determine payload storage and cost.



Example Build
Rum Rouge's Vehicle Emporium specializes in converting civilian vehicles to specimens of warfare. A group of drowlasites http://ragnarr.webs.com/newalienraces.htm purchased such a vehicle. The upgrade to a military package is no issue; they have a very wealthy financer.

1. Purchase hover car for 8,000.
2. Apply military duty modification, 4,400. Top speed is adjusted to 180 and acceleration to 59.5. Add protection 5 and 6 hardpoints to vehicle stat block.
3. Add a large 4hp and medium 2hp surface mount for a combined cost of 1,900.
4. Install a large missile cluster and medium laser cannon in the mounts for a combined cost of 24,000.
5. A EWC targeting system is installed and a link for each weapon. Two helmets are also purchased, one each for the pilot and co-pilot. EWC cost 850, links cost 100 and two helmets cost 400 for a combined cost of 1,350.
6. Install an albedo and inertia screen requiring a total of 8 emitters; 4 for each type of screen. The combined cost is 3,600.
7. The laser cannon requires a SEU drum costing 5,000 and takes 0.2 m3. Three large missiles cost 1,200 and take up 0.5 m3 leaving 1.3 m3 for cargo.

The total upgrade cost is 49,450 credits, quite a bit more than the original vehicle cost!

G.N.A.T (Military hover car)
Size 2, variable hover vehicle
Protection 5, Hardpoints 6 (0 remain)
Top 180, Cruise 100, Accel 59.5, Decel 35
Pass 2, SP 500,Cargo 20kg, 1.3 m3
EWC targeting system; +30% to hit
Defenses: Albedo screen, Inertia screen.
Large surface mount
- 3x large missiles, Range:1600, 3d10x10

Medium surface mount
- Medium laser cannon, Range:500, 2d10x10

VEHICLE LIST

Vehicle	Size	Top Speed	Cruise Speed	Accel	Decel	Pass	SP	Cargo	m3	Cost(Cr)	Mode of Transport
Dune Crawler	5	100	50	50	50	4	1100	7,000kg	25	44,000	Ground
Explorer	4	200	100	55	28	8	800	2,000kg	6	20,000	Ground
Ground Cycle	1	200	100	80	40	2	200	20kg	0.5	2,000	Ground
Ground Car	2	200	100	70	35	4	500	150kg	2	5,000	Ground
Ground Transport	5	150	75	35	18	3	1000	10,000kg	30	15,000	Ground
Offroader	3	150	75	60	30	5	600	100kg	3	5,500	Ground
Personal Walker	2	150	75	75	75	2	550	300kg	2	5,250	Ground
Snow Cycle	1	100	50	50	25	2	175	15kg	0.25	1,750	Ground
Hovercycle	1	300	150	80	40	2	200	20kg	0.5	2,000	Hover
Hover Car	2	200	100	70	35	4	500	100kh	2	8,000	Hover
Hover Transport	5	125	63	35	18	3	1000	10,000kg	35	20,000	Hover
Aircar	3	650	325	200	100	4	600	1,000kg	5	50,000	Air
Cargojet	6	1100	550	125	63	4	1200	100,000kg	162	120,000	Air
Glijet	1	100	30	30	--	1	100	15kg	0.1	3,000	Air
Jetcopter	4	500	250	125	63	4	800	500kg	8	40,000	Air
Cargo Ship	6	50	23	20	10	15	1200	20,000ton	300	36,000	Water
Powerboat	3	100	50	20	10	6	600	250kg	6	6,500	Water
Sub	5	50	25	10	5	10	1500	8,000kg	25	28,000	Water
Skicycle	1	100	50	50	27	2	200	10kg	0.25	1,300	Water

SP = Structural Points
Top/Cruise Speed is listed as kph/meters per turn.

Ground/Hover Transport – Variant transports are used as personnel carriers are able to haul up to 20 men comfortably and still have room for 10 cubic meters of storage.

Snow Cycle – small two-man transport having two skids in front and a single track in back for traction. It is designed for traveling on snow or ice. The snow cycle is only able to operate in the snow. When attempting to operate it on paved roads or in loose gravel or dirt, sparks fly everywhere from the steel runners scraping against pavement or stone, and performance is hindered (half top speed).

Offroader – A ground car specifically designed for off road use away from urban areas. Most have an open cockpit, rugged suspension and sit quite a bit higher than their ground car cousins. This vehicles advantage is the ability to handle rough terrain without a penalty.

Personal Walker - A personal walker is a 2-legged upraised vehicle and can carry around two crewmen. Walkers are rugged and can handle diverse terrain by stepping or jumping over most objects in their path. Sometimes they simply crush objects rather than move around them. If a walker is tipped over it cannot right itself. A variant personal walker is a full-body vehicle which encases the pilot in a special full-body sensor suit that amplifies movement moving the walker more like a person than a vehicle. It has shoulders, elbows, wrists, hands, fingers and a mobile waist. Multiply the top, cruise, accel, decal and SP by 1.5. The cost is 9,500Cr.

Dune Crawler – A solid vehicle able to cover shifting sands and drifting terrain with its broad feet pods, and able to cross crevasse and ravines with its long body span. It can crawl up inclines up to 45 degrees, and climb back down the other side due to its low center of gravity. It is designed for rough terrain and excels there.
A variant all-terrain transport has a sealed passenger compartment that allows the vehicle to traverse inhospitable atmospheres or even in a complete vacuum. This option, popular on planets unsuitable to sustain life, costs an extra 2,000Cr.

Cargojet – The cargojet is the largest and most durable of the aerial vehicles. Powerful engines allow it to ferry massive amounts of cargo from one location to another on the same planet. It is not a hover vehicle and requires a runway to take off and land and maneuvers like a brick. A variant cargojet called a jetliner can carry 1,500 passengers and 10,000kg in 16 cubic meters of storage.

Skicycle – Skicycles are personal watercraft slightly larger than a ground cycle used for personal recreation. Water enters the craft and is expelled out the back causing forward thrust.

Powerboat – Pleasure watercraft with open cockpits and a stowage area in the front of the hull. They are propelled using water intakes and pumps or prop driven. On water worlds these vehicles are the main method of transport.

Sub – Sealed-cabin watercraft designed to travel underwater. Modern subs require life-support systems that generate oxygen and filter water from the ocean. Cheaper versions must surface every 100 hours to replenish its oxygen supply. Variant subs designed for deep sea mining and drilling also exist. Such subs have room for only two people and have small drilling or mining facilities in their cargo holds. They ferry up to 20 cubic meters of minerals from the bottom of the sea at a time.

Cargo ship – Large watercraft designed to carry equipment, cargo or personnel across large bodies of open water. A series of propellers provide forward and reverse motion. The bridge of the ship typically sits much higher than the main deck, allowing the crew to view ocean debris, currents, and waves. Cargo is stored below-deck protected from the elements. A flat cargo ship configured with a cargo platform allows up to twice the amount of cargo storage.

NON-CIVILIAN DUTY TABLE

Vehicle Size	1	2	3	4	5	6
CORPORATE						
Protection	2	2	3	3	4	4
Hardpoints	1hp	1hp	2hp	2hp	3hp	3hp
Acceleration	--	--	--	--	--	--
Top Speed	--	--	--	--	--	--
Cost	275	550	825	1,100	1,375	1,650
SECURITY						
Protection	3	3	4	4	5	5
Hardpoints	1hp	2hp	3hp	4hp	5hp	6hp
Acceleration	--	--	--	--	--	--
Top Speed	--	--	--	--	--	--
Cost	550	1,100	1,650	2,200	2,750	3,300
PARAMILITARY						
Protection	4	4	5	5	6	6
Hardpoints	2hp	4hp	6hp	8hp	10hp	12hp
Acceleration	--	--	x0.95	x0.90	x0.90	x0.90
Top Speed	--	--	--	--	--	x0.95
Cost	1,100	2,200	3,300	4,400	5,500	6,600
MILITARY						
Protection	5	5	6	6	8	8
Hardpoints	3hp	6hp	9hp	12hp	15hp	18hp
Acceleration	x0.90	x0.85	x0.80	x0.80	x0.80	x0.75
Top Speed	x0.90	x0.90	x0.90	x0.90	x0.90	x0.85
Cost	2,200	4,400	6,600	8,800	11k	13.2k

Vehicle Size is used for calculating defenses.
Protection – Subtract this modifier when rolling on the Vehicle Damage Table.

WEAPON MOUNT TYPE TABLE

Mount Type	Size	Hardpoints	Cargo	Cost
Surface	Small	1	--	500
	Medium	2	--	800
	Large	4	--	1,100
Turret	Small	2	--	2,000
	Medium	3	--	2,750
	Large	5	--	3,500
Internal	Small	1	0.1	1,250
	Medium	2	0.3	1,500
	Large	4	0.6	2,000
Internal Turret	Small	2	1	3,250
	Medium	3	3	4,000
	Large	5	6	5,250

MOUNT SIZE TABLE

Mount	Weapon Configuration Options
Small	1 Small Weapon
Medium	1 Medium Weapon, or 2 Small Weapons
Large	1 Large Weapon, or 2 Medium Weapons, or 4 Small Weapons, or 1 Medium and 2 Small Weapons

TARGETING SYSTEM TABLE

Equipment	Notes	Cost (Cr)
EWC System	+30% to hit	850
EWC Link	Purchased per weapon	50
EWC Helmet	Required per gunner	200
CLS	--	1,500
CLS Software	+10% per level to hit	1,000
CLS Link	Purchased per weapon	100

* EWC and CLS links are purchased per weapon.
** CLS software is purchased per level.

DEFENSES TABLE

Defense	Notes	Cost (Cr)
Albedo	Drains 2 SEU/min Each 5pts of damage drains 1 SEU	400
Gauss	Drains 4 SEU/min	600
Inertia	Drains 4 SEU/min	500
Sonic	Drains 2 SEU/min Hit drains 4 SUE	600
Shimmer	Drains 5 SEU/min Hit drains 5 SEU	2,000
Armor	Protection 5	Size x 2,000
Heavy Armor	Protection 8	Size x 3,000
Holo-Screen	Holographic projection	1,250
Imager Disk	Stores up to 3 images	500
Camouflage Feedback Loop	Requires holo-screen	1,000
Projection System	Requires holo-screen and separate imager	2,000

1. Costs are per emitter.
2. Number of emitters is equal to 2x vehicle size
3. Armor protection is in addition to the protection number listed in the Non-Civilian Duty Table.
4. Armor, multiply the vehicle SP by 1.25
5. Heavy armor, multiply the vehicle SP by 1.5. This armor is restricted to vehicle sizes 3 – 6

The Vehicle Weapons List shows the type of payload (ammo) each weapon uses. This table is used to determine cost per payload size and how much cargo space is used. For example; medium machine guns payload is 200, it will cost 100 credits and take up 0.2 m3. Of course I can have a larger payload; this is the minimum requirement for this particular weapon.

Rockets and Missiles are sold in increments of 3, if you require less simply divide the cost and cargo by 3 for single payloads.

AMMO TABLE

Payload	Cost (Cr)	Cargo (m3)	Notes
Bullets	50	0.1	Per 100
Shells			
» Small	75	0.1	Per 10 shells
» Medium	150	0.2	
» Large	225	0.3	
SEU Drum	5,000	0.2	1,000 SEU
Rocket			
» Small	250	0.3	Per 3
» Medium	500	0.4	rockets
» Large	750	0.5	
Missile			
» Small	400	0.3	Per 3
» Medium	800	0.4	missiles
» Large	1200	0.5	
Napalm Drum	250	0.2	Each drum

* **Cargo** is ignored if payload outside the vehicle (rockets mounted on a wing for example)

VEHICLE WEAPON LIST

Weapon	Skill	ROF	Payload	Usage	Range	Damage	Cost
Machine Gun			Bullet				
» Small	Projectile	Burst	100	10/burst	70	10d10	2,000
» Medium			200		150	15d10	3,000
» Large			300		200	2d10x10	4,000
Cannon			Shell				
» Small	Projectile	Single	20	1	150	12d10	4,000
» Medium			15		300	2d10x10	6,000
» Large			10		600	4d10x10	10,000
Laser Cannon			SEU Drum				
» Small	Beam	Single	1000	20	200	2d10x10	6,000
» Medium			1000	40	500	4d10x10	9,000
» Large			1000	60	1000	6d10x10	12,000
Autolaser			SEU Drum				
» Small	Beam+20	Burst	1000	20/burst	50	10d10	3,000
Sonic Cannon			SEU Drum				
» Small	Beam	Single	1000	10	20	10d10	1,200
» Medium			1000	20	40	2d10x10	3,000
» Large			1000	30	60	3d10x10	6,000
Rocket Cluster			Rocket				
» Small	Projectile	1 - all	12	1-12	100	15d10	5,000
» Medium			6	1-6	100	3d10x10	7,000
» Large			3	1-3	100	4d10x10	10,000
Missile Cluster			Missile				
» Small	Projectile	1 - all	12	1-12	400	15d10	7,000
» Medium			6	1-6	800	3d10x10	10,000
» Large			3	1-3	1600	4d10x10	15,000
Bomb			Bomb				
» Small	Projectile	1 - all	10	1	n/a	2d10x10	100
» Medium			5	1	n/a	4d10x10	500
Flamethrower			Napalm				
» Small	Projectile	Single	20	1	20	2d10	200
» Medium			10	1	30	4d10	450

* Range listed is point blank, each addition range is -10; for example small sonic cannon point-blank is 20, 21-40 is short, 41-60 is medium and so on.

Machine Gun - This weapon is belt fed and has long barrels with flash suppressors to hide the fired ordinance. They spray bullets in bursts covering an area effectively, single-shot mode not available. Machine guns can quickly shred unprotected vehicles to pieces in seconds.

Cannon - When you want to get someone's attention nothing says it more than a large boom followed by a shell the size of a watermelon. Cannons are a single long barrel and fire single shells at high-speeds; the impact of the shell is impressive. On smaller vehicles cannons tend to "rock" the vehicle backwards when fired.

Laser Cannon – These weapons fire a large destructive single-beam of energy. There is no blast, it simply slices through unprotected areas often searing sensitive systems on its target.

Autolaser
Several barrels comprise an auto laser weapon. They rapidly fire tens of lasers per second hoping to catch their targets in area bursts. Although laser themselves do not make noise the motion of the weapons mechanics does.

Sonic Cannon
While most militaries protect against kinetic and energy weapons some mercenary units incorporate sonic weapons into their arsenal. This weapon fires a concentrated beam of chaotic sonic turmoil that is clearly recognizable as a ball of shimmering air disturbance as it speeds towards the target. For each range after point-blank subtract 5 damage.

Rocket Cluster
Typically mounted under the wings or on a cluster rack they can fire single or in two or more increments (called clusters). The pilot lines up the target or aims a swivel and pulls the trigger. The weapon streaks towards the target leaving a trail of smoke behind marking the attackers' location.

Missile Cluster
This is the only weapon that requires a lock to fire. Once locked the projectile is launched and streaks towards the target at very high speeds. An almost guaranteed hit the concussion blast of missiles can rip a civilian aircar in two! (Gunners to-hit roll "locks" the target. On any subsequent turn the weapon can be fired. It streaks towards the target and hits unless a defense such as flares thwart it.)

Bomb - These devices are like very large hand grenades. They are mounted on a wing of a vehicle or inside the vehicles bomb-bay. A simple target system notifies the pilot when to drop the bombs based on the vehicles speed and trajectory.

Flamethrower - This is a larger version of the character sized flamethrower. It spews a flammable gel-like substance setting it on fire as it leaves the barrel. Note that vehicles traveling at high speeds will affect the range and consistency of the gel and may even damage their own vehicle! Once the gel adheres to a surface it will continue to burn for 3 turns causing 1d10 damage each turn.

VEHICLE DAMAGE TABLE

Roll*	Effect
3-10	Roll normal weapon damage and apply the result to the vehicles structural points (SP).
11	Vehicle continues to accelerate uncontrollably during this and subsequent turns. Each turn pilot may make a RS check to get the vehicle's acceleration back under control. Effect only lasts until brought back under control.
12	Vehicle loses ability to accelerate. Sudden lurch requires pilot to make a RS check. Failure results in a roll on the Loss of Control table.
13	Steering jammed straight.
14	Steering jammed hard left or right, if objects are in the way roll on the Loss of Control table.
15	One of the vehicles axles, manifolds, or fans has been damaged; the vehicle limps along or staggers. Maximum speed is 10% top speed. Impact forces a RS check or roll on the Loss of Control table.
16	Vehicle drive-train, primary linkage, or some other central component is structurally damage and vehicle comes to a complete stop until repaired. Top speed 0kph. Pilot must make RS check to avoid a roll on the Loss of Control table.
17	A wedged chunk of body structure jams into the steerage causing straight movement only. Can be freed by a successful RS check but this is a risky maneuver. If the roll fails, the character must roll on the Loss of Control table.
18	Vehicle braking system hit, vehicle will not stop.
19	Vehicle's engine has been damaged in a way that prevents it from starting. It will continue to operate until it is turned off, then won't re-start.
20	Computer hit; loose navigation and targeting controls. Weapons must be fired manually.
21	Turret mount hit and locked in fixed position.
22	Mount hit; random weapon destroyed.
23	One of the vehicle doors is ripped off exposing the inside. If a passenger is close to the door, he may now be targeted directly by other vehicles!
24	Emitter control system hit; loose all screens. Field repair possible at -10 if vehicle is swaying.
25	Computer hit; -20% for functions involving computer system. Field repair possible at -10 if vehicle is swaying.
26	A randomly-selected passenger is jostled and may take no action this turn. Each subsequent turn, he must make a RS check to resume his ability to act normally.
27	Vehicle braking system takes damage. Any turn where the pilot tries to decelerate, the vehicle misbehaves and the pilot must make a RS check. Failure results in a roll on the Loss of Control table.
28	External lighting system fails. This includes high-intensity LED beams and IR systems or whatever type of external lighting exists. If driving at night this obviously reduces the pilots' ability to see.
29	Power plant is reduced to sludge. RS check required failure results in a roll on the Loss of Control table. Power plant must be replaced, it is too damaged to recharge even if such a service is available.
30	Vehicle ceiling is reduced by one category (sub-orbital to high, for instance). If the vehicle isn't an aircraft, assume the underbody bottoms-out and forces a RS check, failure results in a roll on the Loss of Control table.
31	The front or rear window is cracked. The limited visibility causes a -10 to RS checks. The next hit in this area will shatter the glass causing 1d10 damage to all occupants.
32	A randomly-selected passenger must make an RS check or be thrown from vehicle.
33	The vehicles canopy is ripped from the struts. All crew are now able to be targeted directly! Anyone pursuing might have to make a RS check to avoid a roll on the Loss of Control table.
34+	Vehicle engine is reduced to slag. Needs completely overhauled/replaced. Pilot must make a RS check, failure results in a roll on the Loss of Control table.

* Roll = Number of d10 damage dice + 2d10

Target Modifiers: +2 for Size 1 vehicles, -2 for Explorer

VEHICLE LOSS OF CONTROL TABLE

d10	Result
1	Vehicle slides to the left (or right), RS check +10% to maintain the slide and correct the vehicle. Failed check and the vehicle spins 1d10 times before coming to a halt. If the vehicle is airborne the vehicle looses 1d10 x100 meters of altitude instead of coming to a halt. If the vehicle would crash make a RS check +10% to avoid the crash and land.
2	The vehicle starts to roll whether it is a ground, hover or air vehicle. Roll 1d10, even the vehicle rights itself, odd the vehicle is upside down; a successful RS check will right the vehicle automatically. This is a problem for ground and fixed hover vehicles, unless the vehicle is righted, it cannot move.
3	Vehicle catches on fire and will continue to burn until put out. After 1d10 turns, the fire will reach the passenger compartment and crew will have to bail or burn.
4	Vehicle flips over and over out of control. As the vehicle flips side panels are ripped off from smacking the ground or by a gust of air. If the vehicle is airborne it is forced to land. Either case the vehicle may catch on fire.
5	Vehicle flips on its roof and skids 5m for every 10kph before coming to a stop. Roll damage. If the vehicle is airborne it is forced to land. Make a RS check, if successful reduce the damage to 1/2
6	Vehicle's steering mechanism malfunctions. Each turn roll 1d10; 1-4: vehicle turns sharply left, 5-8: vehicle turns sharply right, 9-0: vehicle spins out of control. Passengers not in a seat belt are thrown from the vehicle. Make a RS check, failure results in the vehicle rolling 1d10 times until it stops. If aerial vehicle, make a RS check to right-up the vehicle, for each failure loose 1d10x200 meters of altitude.
7	The vehicle starts slipping to the left/right. Make a RS check to maintain control. Failure and the vehicle spins 1d10 times and stops (aerial vehicles must land).
8	Vehicle catches air gust from under the chassis and starts to revolve. Failure and the vehicle crashes into an object causing 10d10 damage to vehicle and 2d10 damage to each passenger.
9	Wheel, fan, jet, wing comes loose causing the vehicle to whirl uncontrollably. Make an RS check to safely stop the vehicle (or land). Roll damage. If damage was already rolled each passenger takes 4d10 damage instead.
0	Vehicle jaunts and lurches violently and threatens to break apart and does. Vehicle breaks up in 1d10 pieces. Passenger can make a RS check half damage and they are thrown from the vehicle.

* If the vehicle is not moving then ignore this table and roll normal weapon damage.